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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/666,271	09/20/2000	TOSHIYUKI SEKIYA	35.C14800	8367
5514	7590	07/22/2004		
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			EXAMINER PHAM, HAI CHI	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 07/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p>09/666,271</p>	<p>Applicant(s)</p> <p>SEKIYA ET AL.</p>	
	<p>Examiner</p> <p>Hai C Pham</p>	<p>Art Unit</p> <p>2861</p>	<p align="center"><i>OK</i></p>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL REJECTION

Claim Objections

1. Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form. Claim 18 recites the following limitation "storage means for storing the correction data", which has been added to the parent claim 16 as currently amended.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-10 and 16-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Ng et al. (U.S. 5,255,013).

Ng et al. discloses an electrophotographic image recording apparatus comprising a recording head (LED print head 25, Fig. 4), which includes at least one recording element array in which plural recording elements are aligned long a predetermined direction (linear array of LEDs 20, Fig. 2), a driving correction table (uniformity look-up tables 116, 118 defining the brightness characteristic for the particular even and odd-numbered light emitting elements so as to correct the exposure duration of each of the

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even and odd-numbered LEDs in the array), which includes pixel correction data for correcting either a recording driving characteristic or a light emission characteristic of each recording element constituting said recording element array by the pixel unit of image data, and in which the pixel correction data is provided corresponding to plural lines of the image data in a sub-scan direction (image data for successive lines in the sub-scan direction being stored in the respective line buffers 106, 108), and driving control means (controller 124), which modifies a recording driving time of each recording element of said recording element array by the pixel unit, according to switching of the correction data for each line based on said driving correction table including the pixel correction data for the plural lines (the multiplexer 110 controls which of the line buffer outputs are to be transmitted to the latch 112).

With regard to claims 2, 4, Ng et al. further teaches the controller (124) including an LED counter for designating the correction pixel number of the pixel correction data stored in the correction memory (an 8-bit address being provided to each LUT 120, 122 for defining the even-numbered and odd-numbered LEDs) (Fig. 4), a correction queue designation means (the odd/even LEDs correction data tables being sequentially addressed by using the pixel counter included in the controller 124 and the odd/even correction tables in a sequence suited for the print head), and driving time calculation means for calculating the recording driving time of each recording element (pulse duration that defines an exposure duration period that corrects each LED).

With regard to claim 16, Ng et al. teaches the image recording apparatus and control system including storing means for storing correction data for compensating a recording characteristic error of a recording element in the recording element array by

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plural lines (uniformity correction data stored in the LUTs for even and odd-numbered LEDs 116 and 118 in connection with the two line buffers 106 and 108), driving means for driving each of the recording elements on the basis of the correction data (the corrected exposure data for each pixel being sent to the LED print head 125 during each mainline recording period), and control means (controller 124) for periodically changing the correction data used by said driving means for one recording element with respect to each line (updating or changing the uniformity correction data stored in the LUTs 116 and 118 using RAM type memories can be made based on the measured thermal gradient of the print head and/or the changes in process conditions) (col. 9, lines 4-21).

With regard to claim 17, Ng et al. teaches the driving means changes a driving pulse width of each of the recording elements in the recording element array on the basis of the correction data (the exposure duration for each of the even and odd-numbered LEDs is determined based on the uniformity correction data stored in the LUTs 116 and 118) (col. 6, lines 53-68).

The method claims 6-10 and 20-23 are deemed to be clearly anticipated by functions of the above structures.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng et al. in view of Takeuchi (U.S. 6,052,141).

Ng et al. discloses all the basic limitations of the claimed invention except for the medium containing the control program.

However, it is well known in the art that program codes can be generated to perform desired processes specific to any application in a device, which has the proper support of the structural and functional components. Takeuchi discloses an image processing apparatus including a feedback loop for monitoring the intensity of the light emitted by the laser diode (6) comprised in the recording head, the data correction being stored in a correction table (LUT 37) based on which the exposure duration is controlled to modify a recording driving time of the laser diode (using the pulse width modulator 22). Takeuchi further teaches the provision of a storage medium to store program codes to perform all the above operations.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a storage medium containing the program codes as taught by Takeuchi to perform the desired process set forth in Ng et al. device such that the process indicated by Ng et al. can be automatically performed during each printing operation.

6. Alternatively, claims 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh (U.S. 5,687,002) in view of Takeuchi.

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Itoh discloses an image forming apparatus comprising a driving means (LED driver (20) for driving each of recording elements (LED elements 100) in the recording element array on the basis of correction data for compensating a recording characteristic error of the recording element (the light output intensity of each LED element 100 being corrected based on the correction data for each LED stored in PROM 25 such that the intensities of the LEDs are uniform) (col. 5, lines 15-27), and control means (printer controller 11) for controlling the driving means driving each recording element.

However, Itoh fails to teach the printer controller periodically changing the correction data used by the driving means.

Regardless, Takeuchi discloses an image processing apparatus including a feedback loop for monitoring the intensity of the light emitted by the laser diode (6) comprised in the recording head, the data correction being stored in a correction table (LUT 37) based on which the exposure duration is controlled to modify a recording driving time of the laser diode (using the pulse width modulator 22). Takeuchi further teaches the correction table (LUT 37) being updated to increase control precision (col. 8, lines 2-7).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Itoh by periodically rewriting the correction table as taught by Takeuchi for the purpose of increasing the control precision as suggested by Takeuchi.

With regard to claims 17-19, Itoh further teaches:

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- wherein said driving means changes a driving pulse width of each of the recording elements in the recording element array on the basis of the correction data (col. 5, lines 28-35, col. 7, lines 48-61);
- storage means (PROM 25) for storing the correction data;
- wherein the recording element is a light emission element (LED 100).

The method claims 20-23 are deemed to be clearly anticipated by the combined functions of the above structures.

Response to Arguments

7. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new grounds of rejection as presented in this Office action.

Conclusion

8. Applicant's amendment, which changed the scope of the base claims, necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER

July 20, 2004